THESIS ABSTRACT

TITLE OF THE ABSTRACT:

"To study the role of diffusion weighted magnetic resonance imaging for predicting clinical and pathologic response to neoadjuvant chemoradiotherapy in esophageal cancer"

DEPARTMENT:

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DEGREE AND SUBJECT:

M.D in Radiotherapy

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OBJECTIVES:

To evaluate the role of serial diffusion weighted magnetic resonance imaging (DW-MRI) for predicting clinical and pathologic response to neoadjuvant chemoradiotherapy in esophageal cancer.

METHODS:

This is a prospective cohort study conducted in our institution comprising 24 consecutive patients with biopsy proven, locally advanced esophageal cancer who were planned for neoadjuvant chemoirradiation. All the recruited patients underwent a baseline DW-MRI, another at 10 to14 days and another at the end of radiation. During assessment for surgery, the patients who were deemed surgically inoperable were called as non-

responders. Among those who underwent surgery, patients with complete pathological response (pCR) were called responders whereas those with a poor response were called as non-responders. The Apparent Diffusion Coefficient (ADC) values (mean and minimum) and the ΔADC values were calculated.

RESULTS :

The ADC values measured in the interim scan was significantly higher among patients with pathological complete response compared to the non-responders (mean p=0.013, minimum p=0.001). However, the ΔADC values did not significantly correlate with the pathological response. Hence, it was concluded that serial DW-MRIs performed in patients undergoing chemoradiotherapy is feasible and may be used to predict treatment response at surgery. Also, a significant rise in ADC values in the interim scan obtained at 10-14 days, may predict a pathological complete response at surgery.

Keywords : Diffusion weighted MRI, neoadjuvant chemoradiotherapy, esophageal cancer, pathological response